TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/087,001
Filing Date	February 28, 2002
First Named Inventor	Edward Ratner
Art Unit	2624
Examiner Name	Conover, Damon M

Total Number of Pages in This Submission	16	Attorney Docket Number	10006.000710

ENCLOSURES (check all that apply)

☐ Fee Transmittal Form

   ☐ Fee Attached

☐ Amendment / Reply

   ☐ After Final

   ☐ Affidavits/declaration(s)

☐ Extension of Time Request

☐ Express Abandonment Request

☐ Information Disclosure Statement

☐ Certified Copy of Priority Document(s)

☐ Reply to Missing Parts/ Incomplete Application

   ☐ Reply to Missing Parts under 37 CFR1.52 or 1.53

☐ Drawing(s)

☐ Licensing-related Papers

☐ Petition

☐ Petition to Convert to a Provisional Application

☐ Power of Attorney, Revocation Change of Correspondence Address

☐ Terminal Disclaimer

☐ Request for Refund

☐ CD, Number of CD(s) _____

   ☐ Landscape Table on CD

☐ After Allowance Communication to TC

☐ Appeal Communication to Board of Appeals and Interferences

☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)

☐ Proprietary Information

☐ Status Letter

☒ Other Enclosure(s) (please identify below):

Request for Certificate of Correction;
PTO Form SB-44 (in duplicate);
Exhibit A document;
Return Recept Postcard

Remarks

Certificate

DEC 0 6 2006

of Correction

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm	OKAMOTO & BENEDICTO LLP
Signature	*[signature]*
Printed Name	James K. Okamoto

Date	November 30, 2006	Reg. No.	40,110

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Signature	*[signature]*		
Typed or printed name	James K. Okamoto	Date	November 30, 2006

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants(s): Edward Ratner, et al.

Patent No.: 7,133,564

Issue Date: Nov. 7, 2006

Serial No.: 10/087,001

Filing Date: Feb. 28, 2002

Title: Dynamic Chain-Based Thresholding Using Global Characteristics

Atty. Docket No.: 10006.000710

Attn: Certificate of Correction Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR CERTIFICATE OF CORRECTION

Sir:

The Following errors, as more fully described below, appear in this patent.

☒   The Applicant submits that no fee is due for correction of the errors made by the Patent and Trademark Office; OR,

☐   The errors occurred in good faith. Correction thereof does not involve such changes in the patent as would constitute new matter or would require re-examination. A Certificate of Correction is requested. Enclosed herewith is payment in the amount of $____ to cover the fee for this Certificate of Correction.

Attached hereto are duplicate Forms PTO/SB/44, with at least one copy that is suitable for printing.

DEC 07 2006

Applicants kindly request the following changes:

Issued Claim 3, which was claim 6 during prosecution, should read:

The method of claim 1, wherein the global measure comprises a median measure of the color variation.

Issued Claim 7, which was claim 12 during prosecution, should read:

The apparatus of claim 6, wherein the global measure comprises a mean measure of the color variation.

Issued Claim 8, which was claim 13 during prosecution, should read:

The apparatus of claim 6, wherein the global measure comprises a median measure of the color variation.

Issued Claim 9, which was claim 14 during prosecution, should read:

The apparatus of claim 6, wherein the global measure is calculated over the candidate edge chains within the image.

Issued Claim 10, which was claim 15 during prosecution, should read:

The apparatus of claim 6, wherein the dynamic chain-based threshold function comprises a linear function of the global characteristic.

A copy of the Amendment and Response to Office Action filed on July 10, 2006 is submitted herewith as Exhibit A. Exhibit A shows the language of then Claims 6, 12-15 (now issued Claims 3, 7-10) as last amended prior to allowance.
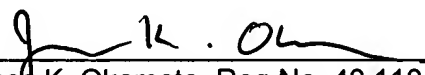
Please send the Certificate to:

James K. Okamoto
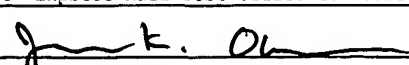Okamoto & Benedicto LLP
P.O. Box 641330
San Jose, CA 95164-1330

Respectfully submitted,

Edward Ratner, et al.

Dated: <u>November 30, 2006</u>   By: _____

James K. Okamoto, Reg No. 40,110
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Enclosure(s)

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Express Mail Mailing Number (optional):				

DEC 07 2006

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO : 7,133,564   Page 1 of 1

APPLICATION NO. : 10/087,001

ISSUE DATE : Nov. 7, 2006

INVENTOR(S) : Ratner, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

in claim 3, on column 9, line 35, after "The method of" insert

-- claim --

in claims 7, 8, 9, and 10, on column 10, lines 6-13, after "The apparatus of" insert

-- claim --

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO : 7,133,564   Page 1 of 1

APPLICATION NO. : 10/087,001

ISSUE DATE : Nov. 7, 2006

INVENTOR(S) : Ratner, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

in claim 3, on column 9, line 35, after "The method of" insert

-- claim --

in claims 7, 8, 9, and 10, on column 10, lines 6-13, after "The apparatus of" insert

-- claim --

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<u>UNITED STATES PATENT AND TRADEMARK OFFICE</u>

In re Application of:

        Edward Ratner, et al.

Application No.:	10/087,001	Examiner:	Conover, Damon M.
Filing Date:	February 28, 2002	Art Unit:	2623

Title: Dynamic Chain-Based Thresholding Using Global Characteristics

Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT AND RESPONSE TO OFFICE ACTION

INTRODUCTORY COMMENTS

Sir:

This paper is responsive to the office action mailed on April 12, 2006.

AMENDMENTS TO THE CLAIMS

Please amend the claims to be as follows.

1. (currently amended)   A method for image processing, the method comprising:

applying a point-based threshold function to identify candidate edge chains in an image being processed;

determining a dynamic chain-based threshold function that is dependent on ~~at least one characteristic~~ a global characteristic of the image being processed;

applying the dynamic chain-based threshold function to selectively filter the candidate edge chains; and

removing from a set of edge chains those candidate edge chains that fail to pass the dynamic chain-based threshold function,

wherein the global characteristic comprises a global measure of color variation that is calculated over an image.

2. (canceled)

3. (canceled)

4. (canceled)

5. (currently amended)   The method of ~~claim 4~~ claim 1, wherein the global measure comprises a mean measure of the color variation.

6. (currently amended)   The method of ~~claim 4~~ claim 1, wherein the global measure comprises a median measure of the color variation.

7. (currently amended)   The method of ~~claim 4~~ claim 1, wherein the global measure is calculated over the candidate edge chains within the image.

8. (currently amended)   The method of ~~claim 2~~ claim 1, wherein the dynamic chain-based threshold function comprises a linear function of the global characteristic.

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9.   (currently amended)   An apparatus for image processing, the apparatus comprising:

a candidate edge chain identifier for identifying candidate edge chains in an image being processed;

means for determining a dynamic chain-based threshold function that is dependent on ~~at least one characteristic~~ a global characteristic of the image being processed; and

a threshold applicator for applying the dynamic chain-based threshold function to selectively filter the candidate edge chains,

wherein the global characteristic comprises a global measure of color variation that is calculated over an image.

10.   (canceled)

11.   (canceled)

12.   (currently amended)   The apparatus of ~~claim 11~~ claim 9, wherein the global measure comprises a mean measure of the color variation.

13.   (currently amended)   The apparatus of ~~claim 11~~ claim 9, wherein the global measure comprises a median measure of the color variation.

14.   (currently amended)   The apparatus of ~~claim 11~~ claim 9, wherein the global measure is calculated over the candidate edge chains within the image.

15.   (currently amended)   The apparatus of ~~claim 10~~ claim 9, wherein the dynamic chain-based threshold function comprises a linear function of the global characteristic.

16.   (original)   The apparatus of claim 9, wherein the apparatus comprises a video encoder.

17.   (original)   The apparatus of claim 16, wherein the video encoder is configured to operate cooperatively with a video decoder, and wherein the video decoder also comprises the edge identifier, the means for determining, and the thresholder.

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18. (original) The apparatus of claim 9, wherein the apparatus comprises a video decoder.

19. (currently amended) A method for processing an image, the method comprises:

determining a dynamic chain-based threshold function that is dependent on ~~at least one global characteristic~~ a global measure of color variation of the image being processed; and

applying the dynamic chain-based threshold function to a candidate edge chain.

20. (currently amended) A system for image processing, the system comprising:

an encoder that includes a candidate edge chain identifier for identifying candidate edge chains in an image being processed, means for calculating a dynamic chain-based threshold function that is dependent on at least one global characteristic of the image being processed, and a threshold applicator for applying the dynamic chain-based threshold function to the candidate edge chains; and

a decoder configured to operate in cooperation with the encoder, wherein the decoder also includes the candidate edge chain identifier, the means for calculating, and the threshold applicator.

REMARKS

With the above amendments, claims 1, 5-8, 9, 12-18, 19 and 20 remain in the application. Claims 2, 4, and 10-11 are hereby canceled without prejudice. Claim 3 was previously canceled without prejudice. Claims 1, 5-8, 9, 12-15, 19 and 20 are hereby amended. No new matter is being added.

Double Patenting

Claims 1, 9, 16-18 and 20 were rejected under 35 USC 101 for double patenting in relation to USP 6,947,605. The claims are hereby amended so as to overcome this rejection.

In particular, claim 1 is now amended so as to incorporate the claim limitations of original claims 2 and 4. Specifically, claim 1 is now requires dependence on "... **a global** characteristic ... wherein the global characteristic comprises a global measure of color variation that is calculated over an image." (Emphasis added.) Hence, applicants respectfully submit that amended claim 1 now overcomes this rejection.

Similarly, claim 9 is now amended so as to incorporate the limitations of original claims 10 and 11. Hence, applicants respectfully submit that amended claim 9 now overcomes this rejection.

Claims 16-18 depend from claim 9. Therefore, applicants respectfully submit that claims 16-18 now also overcome this rejection.

Claim 20 is now amended so as to specify that dependence "... on at least one **global** characteristic ...." (Emphasis added.) Hence, applicants respectfully submit that amended claim 20 now also overcomes this rejection.

Claim Rejections under 35 U.S.C. § 103

Muruyama and admitted art in view of Acharya (Section 5 of the Office Action)

Claims 1-2, 8-10, and 15-18 stand rejected as unpatentable over Muruyama (USP 5,978,513) and admitted art in view of Acharya et al. (USP 6,094,508). Applicants respectfully submit that this rejection is moot in view of the amended claims.

In particular, independent claim 1 is now amended such that it incorporates the limitations from original claims 2 and 4. In other words, amended claim 1 now has the scope of original claim 4. Therefore, this response discusses amended claim 1 (and dependents therefrom) below with respect to the rejection of original claim 4 (per section 7 of the office action).

Similarly, independent claim 9 is now amended such that it incorporates the limitations from original claims 10 and 11. In other words, amended claim 9 now has the scope of original claim 11. Therefore, this response discusses amended claim 9 (and dependents therefrom) below with respect to the rejection of original claim 11 (per section 7 of the office action).

Muruyama in view of Acharya (Section 6 of the Office Action)

Claims 19-20 stand rejected as unpatentable over Muruyama in view of Acharya et al. Regarding claim 19, applicants respectfully submit that this rejection is now moot. Regarding claim 20, applicants respectfully traverse this rejection with respect to the claim as now amended.

Regarding claim 19, independent claim 19 is amended so as to specify that the threshold function is "dependent on a global measure of color variation...." This limitation is similar to the limitation of original claim 4. Therefore, this response discusses amended claim 19 below with respect to the rejection of original claim 4 (per section 7 of the office action).

Regarding claim 20, claim 20 as amended now recites as follows.

20.   A system for image processing, the system comprising:

an **encoder** that includes a **candidate edge chain identifier** for identifying candidate edge chains in an image being processed, **means for calculating a dynamic chain-based threshold function** that is dependent on at least one global characteristic of the image being processed, and a **threshold applicator** for applying the dynamic chain-based threshold function to the candidate edge chains; and

a **decoder** configured to operate in cooperation with the encoder, wherein the decoder also includes the **candidate edge chain identifier**, the **means for calculating**, and the **threshold applicator**.

(Emphasis added.)

As shown above, claim 20 requires that the encoder and the decoder **both** include the candidate edge identifier, means for calculating a dynamic chain-based threshold function, and the threshold applicator. This aspect is taught in the present application, for example, in FIG. 5 and the description on page 11, lines 12-22, which are reproduced below for convenience.
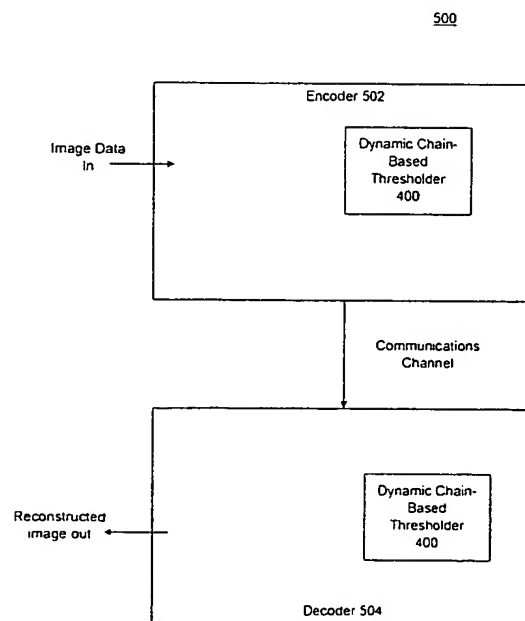

FIG 5

FIG. 5 is a diagram depicting a system 500 in accordance with an embodiment of the invention. The system 500 includes both an encoder 502 and

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a decoder 504. The encoder 502 may be, for example, incorporated into a video transmitting apparatus. Similarly, the decoder 504 may be incorporated into a video receiving apparatus operable in cooperation with the encoder 502. The encoder 502 may communicate video information by way of a communications channel suitable for transmission of digital data.

As shown in FIG. 5, both the encoder 502 and the decoder 504 may include and utilize the dynamic chain-based thresholder 400. This is advantageous in that, if both encoder and decoder use the same thresholder 400 to extract edges from images, then less information about the image needs to be transmitted. This reduces the bandwidth required to transmit video images while maintaining a visual quality level.

As described above, an advantage of the claimed invention is that less information about the image needs to be transmitted if both encoder and decoder use the same dynamic chain-based thresholder.

Muruyama does not disclose or teach a system where the **decoder** has its own chain-based thresholder. On the contrary, Muruyama describes its decoder as "decoding the signal encoded by the chain coding circuit **30**" of the encoder. See column 14, lines 1-2. In other words, Muruyama discloses a system where the encoder has a chain coding circuit and where the decoder decodes the output of that circuit.

Acharya et al. also does not disclose or teach a system where the **decoder** has its own chain-based thresholder.

Therefore, for at least the above discussed reasons, applicants respectfully submit that amended claim 20 is now in form for allowance.

Muruyama, admitted art, and Acharya in view of Bonneau (Section 7 of the Office Action)

Amended claims 1, 5-8, 9, 12-18, and 19 stand rejected as unpatentable over Muruyama, admitted art, and Acharya et al. in view of Bonneau et al. (Amended claim 1 has a similar scope as original claim 4. Amended claim 9 has a similar scope as original claim 11. Amended claim 19 has a limitation similar to original claim 4.) Applicants respectfully traverse this rejection with respect to the amended claims.

Amended claim 1 now recites as follows.

1. A method for image processing, the method comprising:
applying a point-based threshold function to identify candidate edge chains in an image being processed;
determining a **dynamic chain-based threshold function** that is dependent on a global characteristic of the image being processed;
applying the dynamic chain-based threshold function to **selectively filter** the candidate edge chains; and
removing from a set of edge chains those candidate edge chains that fail to pass the dynamic chain-based threshold function,
wherein the global characteristic comprises a **global measure of color variation that is calculated over an image.**

(Emphasis added.)

As shown above, claim 1 now recites that the **dynamic chain-based threshold function** is dependent on a global characteristic, and that the dynamic chain-based threshold function is used to **selectively filter** the candidate edge chains. Even more specifically, claim 1 is now limited such that "the global characteristic comprises a **global measure of color variation** that is calculated over an image."

None of the cited references (not Muruyama, nor admitted art, nor Acharya et al., nor Bonneau et al.) disclose or teach the claimed **dynamic chain-based threshold function** which is used to **selectively filter** the candidate edge chains Furthermore, none of the cited references disclose or teach the claimed dynamic chain-based threshold function which is **dependent on a global measure of color variation.**

Regarding Muruyama and the admitted art, the Examiner has determined that neither Muruyama nor the admitted art describe a chain-based threshold that is dependent on a characteristic of the image being processed. (See page 4, lines 10-12 of the latest office action.)

Regarding Acharya et al, that reference discloses dynamic point-based thresholding. However, the claimed dynamic **chain-based threshold function to selectively filter the previously-identified chains** is an entirely separate and distinct step which is performed after the dynamic **pixel-based threshold function** of Acharya et

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al. Hence, applicant respectfully submits that Acharya et al also does not disclose or teach the claimed invention as recited in amended claim 1.

Regarding Bonneau et al., this reference is cited for producing encoded images separated by color components. **However, neither Bonneau et al, nor Bonneau et al combined with the other references, teaches or suggests that a measurement of color variation in a color image may be used to vary a threshold function which is used to selectively filter candidate edge chains.**

For at least the above-discussed reasons, applicants respectfully submit that amended claim 1 is now patentably distinguished over the cited art.

Claims 5-8 depend from claim 1. As such, applicants respectfully submit that claims 5-8 are now patentably distinguished over the cited art for at least the same reasons discussed above in relation to claim 1.

Similar to claim 1, claim 9 now recites that the **dynamic chain-based threshold function** is dependent on a global characteristic, and that the dynamic chain-based threshold function is used to **selectively filter** the candidate edge chains. Even more specifically, claim 9 is now limited such that "the global characteristic comprises a **global measure of color variation** that is calculated over an image." Thus, for at least the same reasons discussed above in relation to claim 1, applicants respectfully submit that claim 9 is now also patentably distinguished over the cited art.

Claims 12-18 depend from claim 9. As such, applicants respectfully submit that claims 12-18 are now patentably distinguished over the cited art for at least the same reasons discussed above in relation to claim 9.

Similar to claim 1, claim 19 now recites that the **dynamic chain-based threshold function** is dependent on a **global measure of color variation**. Hence, for at least the same reasons discussed above in relation to claim 1, applicants respectfully submit that claim 19 is now also patentably distinguished over the cited art.
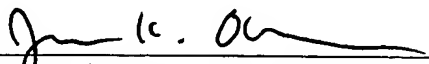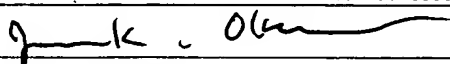
Conclusion

For at least the above reasons, it is respectfully submitted that claims 1, 5-8, 9, 12-18, 19 and 20 are now patentably distinguished over the cited art and are now in form for allowance.

The Examiner is invited to telephone the undersigned at (408) 436-2111 for any questions. If for any reason an insufficient fee has been paid, the Commissioner is hereby authorized to charge the insufficiency to Deposit Account No. 50-2427.

Respectfully submitted,
Edward Ratner, et al.

Dated: _____ July 10, 2006 _____

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Signature:		
Typed or Printed Name:	James K. Okamoto	Dated: July 10, 2006
Express Mail Mailing Number (optional):		

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